



1/4" SHORTY Drill (BALL-BEARING EQUIPPED)

Ability to work "around corners" and in small openings has popularized this drill in many production and assembly operations. Small, round motor housing requires no extra handle.

Capacity: In steelup to 1/4";	In hardwoodup to ½"
Speed: No-load	Full load
Optional No-load Speeds (no extra)	
Overall length: Chuck spindle end41/2";	Lengthwise
Weight: Net	
Price, Paddle Switch Unit complete, specif	y voltage (Cat. No. 287)\$56.00

\$56.00 (Cat. No. 298).

1/4" JUNIOR ELECTRIC DRILL



Capacity: In steelup to 1/4";	In hardwoodup to 1/2"
Speed: No load	Full load1400 R.P.M.
Weight: Net	Shipping Weight
Overall length1034"	
Price, complete, specify voltage (Cat. No.	. 30) \$28.00

THE 1/4" HOLGUN ELECTRIC DRILL



A PERFECTLY proportioned "Handful of Power" of surprising compactness and smooth lines. "Pistol Grip and Trigger Switch," special ball spindle bearing, splined gear mounting, screened air inlets and full ball-bearing equipped. Available in eight spindle speeds from high torque at 500 R.P.M. to high speed at 5,000 R.P.M. Choose Standard Models for regular production; Heavy-Duty Models for severe constant service schedules; low speed units for hard alloys.

1/4" Standard HOLGUN	Standard Speed Model	Low Speed Model
Capacity in steel No-load Speed	. up to $\frac{1}{4}''$	up to ¼" 500 R.P.M.†
Weight: Net	. 3 lbs.	31/ lbs.
Shipping Overall length	63/4 "	41/2 lbs. 71/8" 34"
Spindle Offset Cat No	345	346
Price, complete, specify voltage	\$38.00	\$44.00

1	/4" ł	Heavy-	Duty	HOL	GUN	
Capacity in steel				. up	to $\frac{1}{4}''$	

No-load Speed	1700 R.P.M.*	500 R.P.M.
Weight: Net	31/2 lbs.	3% lbs.
Shipping	51/2 lbs.	$5\frac{3}{4}$ lbs. $8\frac{3}{8}''$
Overall length	734"	83/8"
Catalog No.	457	460
Price, complete, specify voltage	\$42.00	\$48.00
Trice, complete, specify voltage	\$412100	•

1/4" Heavy-Duty HOLGUN (SIDE HANDLE MODEL—NOT ILLUSTRATED) up to ¼" up to ¼" 1700 R P M * 500 R.P.M.† Capacity in steel ...

No-load Speed	1700 R.P.M.*	500 R.P.M
Weight: Net	4 lbs.	$4\frac{1}{4}$ lbs.
Shipping	6 lbs.	$6\frac{1}{4}$ lbs.
Overall length	81/8"	83/4 "
Catalog No	459	462
Price, complete, specify voltage	\$42.00	\$48.00
r rice, complete, specify voltage		+ 10100

*Optional speeds (no extra cost)—2500, 3500 or 5000 R.P.M. †Optional speeds (no extra cost)—750, 1000 or 1500 R.P.M.

1/4" STANDARD DRILL BALL-BEARING EOUIPPED)



The popular 1/4" Standard Drill is supplied in very sturdy aluminum alloy housings. This feature adds strength and ability to stand abuse, while retaining light weightto-power ratio. Chuck spindle bearing is double grease sealed with inner and outer races locked.

Capacity in steelup to 1/4" Speed: No-load (Std.)2000 R.P.M.	Net Weight
Optional No-load Speeds 3500 R.P.M. (at no extra cost)	Overall length
Price, complete	\$44.00
Equipped with No. 24322 Chuck Protecto	sr\$1.00 extra

Equipped with No. 24322 Chuck Protector.....

1/4" HEAVY DUTY DRILL



A sturdy, perfectly balanced drill for constant service on production and heavy duty maintenance work. Especially suited to driving Carbon Cleaning Tools. Armature and chuck mounted on ball bearings. Automatic release switch with thumb latch for optional use.

Capacity: In steel $1_4''$; In hardwood $1_2''$ Speed: No load 2000 R.P.M.; Full load 1280 R.P.M. Weight: Net 6_3^2 lbs.; Shipping 9_3^2 lbs. Overall length 123/4'' 123/4'' $123/4''$	
Price, with geared chuck and key—(Cat. No. 32)	

5/16" HEAVY DUTY ELECTRIC DRILL (BALL-BEARING EQUIPPED)

(SEE ILLUSTRATION OF 1/4" HEAVY DUTY)

Designed for industrial production service on cabinet and body assembly, and especially suited to lead hole drilling on screwdriving operations. Automatic release switch equipped with thumb latch for optional use. Armature and chuck spindle mounted on ball bearings.

Capacity: In steelup to 5/6";	In hardwood	5/8"
Speed: No load	Full load	920 R.P.M.
Weight: Net7 lbs.;	Shipping	
Overall length		
Price, with geared chuck and key (Cat. No	o. 360)	\$52.00
Price, with Portomatic keyless chuck (Cat	. No. 387)	\$55.00
*Special Speed-1000 R.P.M\$2.50 extr	n.	

3%" STANDARD BALL-BEARING DRILL

Sturdy aluminum alloy housings provide high power-to-weight ratio, improve strength and life of housings. Double grease sealed spindle bearing; inner and outer races locked in place.

SPECIFICA	
Capacity in steelup to 3/8"	Weight: Net
No-load Speed700 R.P.M.	Shipping
Optional No-load Speeds (350, 500, or	Overall length
(at no extra cost) 11100 R.P.M.	
Price, complete, specify voltage (Cat. No.	490) \$52.00
This Drill can be furnished with 5/16" gear	ed chuck and no-load speed of 1100
R.P.M. at no extra cost.	· · · · · · · · · · · · · · · · · · ·

STANDARD EQUIPMENT, Drills shown above-3-conductor cable and plug; automatic-release trigger switch and locking pin (except ¼" Junior and Shorty); 3 jaw Jacobs threaded chuck and key; Universal motor, operating on A.C. or D.C. STANDARD VOLTAGE for Drills shown above-110 or 220. On special order 125 or 240 volts. 1/4" Standard Drill only, also 32 volts from stock.

up to 1/4"

DRILL CAPACITIES in hardwood are up to twice drill capacity in steel.

3/8" HEAVY DUTY BALL-BEARING DRILL SEE ILLUSTRATION OF 1/2" STANDARD ABOVE Designed for industrial use in plants where production drilling of $\frac{3}{3}$ holes at high speed is required. Design and construction features same as for $\frac{1}{2}$ Standard Drill.

SPECIFICATIONS

1/2" JUNIOR DRILL

up to 3'8"

900 R.P.M.

912 lbs. 1234 lbs.

131/2" 362 \$58.00

Capacity, in steel.....

Weight: Net..... Shipping.....

Overall length...... Cat. No. (specify voltage).....

No-load Speed.....

Price, complete.....



1/2" STANDARD Ball-Bearing DRILL

The most popular general purpose Portable Electric Drill. You'll Portable Electric Drill. You'll note its perfect operating balance instantly; also the close-coupled construction, minimum spindle off-set and horizontal spade handle all so important when drilling in confined space.

	SPECIFICATIONS	
Capacity,	in steel	up to $\frac{1}{2}''$
No-load S	Speed	400 R.P.M.
Weight:	Net	93/4 lbs.
-	Shipping	13 lbs.
Overall le	ngth	133/4 "
	(specify voltage)	361
	nplete	\$58.00

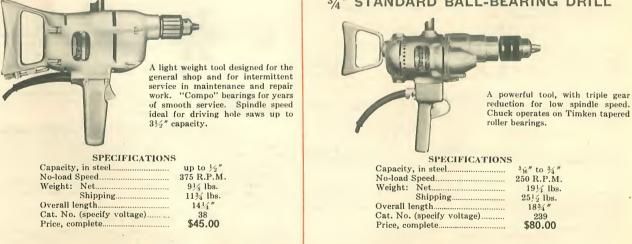
5% " STANDARD BALL-BEARING DRILL



For garages, body shops, mainte-nance crews and general service shop work. Jacobs geared chuck and key. Correct spindle speed for carbon bits, augers, Hole Saws, cylinder hones, hard metals. Heavy-Duty bearing construction, ample power, light weight.

5/2" to 5/8" 300 R.P.M
300 R.P.M
17 lbs.
213/4 lbs.
18″
238
\$72.00

3/4" STANDARD BALL-BEARING DRILL



STANDARD EQUIPMENT, All Drills shown above—3 conductor cable and plug; automatic-release trigger switch and locking pin; 3 jaw Jacobs threaded chuck and key; Universal motor, operating on A.C. or D.C. STANDARD VOLTAGE for all Drills—110 or 220. On special order 125 or 240 volts. ½" Standard Drill only, also 32 volts from stock. DRILL CAPACITIES in hardwood are up to twice drill capacity in steel





11/4" HEAVY DUTY DRILL A new unit of increased power, with extra long safety switch and pipe handles. Motor housing is cast with adaptor pad to fit this Drill to No. 80 Drill Stand. Drilling capacity, in steel, up to $1\frac{1}{4}$ ". (With 3-2 or 3-1 Reducing Sleeve, range is extended down to $\frac{1}{2}$ ").

Standard Voltage on above drills-110 or 220. On special order 125 or 240

volts also available. Universal Motors for A.C. or D.C.

Reversing switch for above drills

.

Quickly adapt portable drills to drill press operations; for heavy duty and accurate work. Handle leverage permits tremendous pressure; bracket adjustable for height and lateral position; one bracket fits several tools and no adaptors are required.

SIZE 80 DRILL STAND—Fits the 114" Heavy-Duty Drill only. Maximum feed is 4"; from C/L Bit to C/L Column is 12". CAT. No. 26607 BENCH DRILL STAND —Net Weight 73 lbs.; shipping 90 lbs. Price \$2 00 Price ...



No. 8169 HORIZONTAL DRILL STAND for 4" Junior Drills......\$3.00

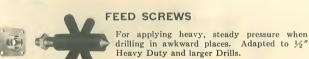
CHUCKS

Replacement geared chucks and chuck keys are available for all sizes and types of Electric Drills. Most $\frac{1}{4}$ " to $\frac{3}{4}$ " Drills may be equipped with Portomatic Keyless Chucks at small cost. Eliminate lost time and damage from lost keys.

 $5_8''$ and 34'' capacity geared chucks on proper size Morse Taper Arbors can be furnished for Drills equipped with M. T. Sockets.

CHUCKS ON MORSE TAPER ARBORS





AUXILIARY SIDE HANDLE



For end handle Drills and Screw Drivers, to provide accurate control and greater feed pressure.

RIGHT ANGLE DRILLING ATTACHMENT

Enables operator to reach out-of-the-way places in work on joists, etc. handy attachment for all types of contracting jobs and electrical installations. Equipped with 3-jaw Geared Chuck, $\frac{1}{2}$ " capacity.

. 38.00 Standard

WHEEL ARBORS

Adapt 1/4" and 1/2" Drills to light grinding and wire brushing, by holding who	eels
in chuck of drill. Body of arbor is $\frac{1}{2}$ " diameter and will take 3" and 4" whe	els.
No. 3071 1/4" Drill Arbor (1/2" diam.; 1/4" shank)	.85
No. 8449 1/2" Drill Arbor (1/2" diam.; 1/2" shank) 1.	.75

SANDING PAD ARBOR

DRILL STANDS





\$120.00

\$5.00 extra









HOLE SAWS

Cut clean, round holes in steel, cast iron, sheet metal, wood or any material a hack saw will cut. Available in three types: fine-tooth for sheet metal, steel and all thin materials; coarse-tooth for cast iron, wood, fibre and all thick materials; both of highest quality tungsten steel, and a new HIGH-SPEED Hole Saw for hard alloys and production work.

Saw Size Outside Diam.	FINE- Tooth Saw Cat. No.	Coarse- Tooth Saw Cat. No.	PRICE EACH (SAW ONLY WITHOUT MANDREL)	HIGH SPE Cat. No.	ED SAW
DIAM.	CAT. NO. 23051 16882; 16883; 21382; 16884; 16885; 16885; 16886* 16887* 16889* 16890* 16891* 16892; 16893; 16894; 16895; 16905	CAT. No. 14906† 14908† 14910† 22953† 14912† 17679† 14914* 14914* 14914* 14915* 14916* 14916* 14916* 149191 14922; 14925; 1492		Cat. No. 21747† 21748† 21749† 21771† 21772† 21772† 21773† 21782* 21783* 21784* 21785* 21786* 21786* 21787‡ 21788‡ 21789‡ 21791‡ 21795‡ 21795‡ 21795‡ 21798‡	Price \$1.28 1.28 1.28 1.28 1.28 1.28 1.28 1.28
358" 334" 378" 4"	16905‡	24173 24174 24175 14932	1.70 1.70 1.70 1.70	21800‡	3.85

MANDRELS FOR 1/4", 5/6" AND 3/8" DRILLS

†22181	Mandrel with Pilot Drill (for 34" to 1316" Saws)	.\$1.65
*22182	Mandrel with Pilot Drill (for 11/4" to 11/2" Saws)	. 1.70
	1/4" Pilot Drill, only for above mandrels	
23050	3/6" Pilot Drill (for 5/8" Hole Saw only)	30
	3051 Hole Saw has a built-in Mandrel; no separate Mandrel su	

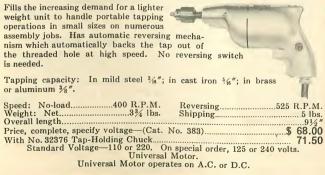
MANDRELS FOR 1/2" AND LARGER DRILLS

†14903	Aandrel with Pilot Drill (for 3/4" to 13/16" Saws) 1.	65
*14904	fandrel with Pilot Drill (for 11/4" to 17/8" Saws) 1.	70
‡18028	Aandrel with Pilot Drill (for 2" to 4" Saws) 1.	95
14935	" Pilot Drill only, for above mandrels	40

SPECIAL HOLE-SAWS

No. 18635 3" Special Hole Saw	2.78
No. 24578 Special Mandrel with pilot drill for above Hole Saws	1.95
No. 24577 Pilot drill for No. 24578 Mandrel.	

3/16" ELECTRIC TAPGUN



1/4" TAPPER



For industrial use where production tapping must be done on pieces too large or heavy to handle

in a machine tapper. Especially adapted to installation and maintenance work on pipe lines, heating and lighting systems, steel shelving, partitions, etc. Threading holes in steel, cast iron, brass or aluminum. Universal motor operates on A.C. or D.C.

Tapping capacity	cast iron; 1/4" in steel: 1/2" in brass	
Speed: No-load	Reversing	
Weight: Net101/2 lbs.	Shipping141/2 lbs.	
Overall length	153/ "	
Price, complete, specify voltage-(Cat. 1		
With No. 32377 Tap-Holding Chuck		
Special Speeds-500, 700 R.P.M.	\$5.00 extra	
	anasial and a 105 - 040 - 14	

Standard Voltage—110 or 220. On special order, 125 or 240 volts. Universal Motor.

ELECTRIC PORTO-SHEARS

The Porto-Shear will cut all types of sheet metal quickly, easily, and accurately. It is also used successfully for cutting thin sections of laminated wood and sheet plastics with slight changes in blade contours. Porto-Shears cut to small radii, and easily follows a straight or irregular pattern line—because the cutting blade is always visible. Porto-Shears easily cut to rated capacity in steel and galvanized iron; about one gage thinner in Monel and stainless; and 50% above rating in copper, aluminum, lead and other non-ferrous metals. Blades can be reground without special fixtures. All units are full ball-bearing equipped (except eccentric) and powered by Universal motors.

5



No. 18 GAGE PORTO-SHEAR New housings of pressed steel have reduced the diameter, overall length and weight of this unit—greatly improving the operating balance and ease of handling. The housing serves as a "selfhandle", eliminating the end handle. Power and capacity are equal to previous model.

No. 16 GAGE PORTO-SHEAR A new operating handle makes this larger, more powerful unit much easier to use. The handle contains an instant-release trigger switch, and may be held at any position, over-top to rear-end, for best balance and control. Power and capacity same as previous model.

No. 12 GAGE PORTO-SHEAR A powerful new unit developed to shear 12-gage steel and galvanized iron. Also cuts about two gages thinner in Monel and stainless, and approximately 50% above rating in sheet copper, aluminum, lead and other non-ferrous metals. Cutting action is clean and smooth without burrs or ragged edges.

	No. 18 Gage	No. 16 Gage	No. 12 Gage
	Porto-Shear	Porto-Shear	Porto-Shear
Capacity, in steel, (U. S. Std.)		16-gage	12-gage
Cutting Speed, (Strokes per min.)		2500	2000
Minimum Cutting Radius		3/4 "	11/2"
Weight: Net		81/2 lbs.	11 lbs.
Shipping		10½ lbs.	131/2 lbs.
Overall length	91/8"	121/8"	1215/6"
Cat. No., (specify voltage)	258	259	507
Price, complete		\$85.00	\$135.00
Standard Voltage—110 or 220. Univer	On special or sal Motor.	der, 125 or 24	10 volts.



NO. 4 TORSIMETER ADJUSTABLE CLUTCH SCREWDRIVER

Pre-adjusted to correct driving torsion; insures uniform results in production screw driving. A light, compact tool for small trim work, cabinet and airplane assembly.

Specially adapted to self-threading screws in light metal. Quick-change chuck 34" hex. socket. Capacity—Up to No. 4 Screws; No-load Speed, 1000 R.P.M. No. 4 Torsimeter with paddle switch—(Cat. No. 244), specify

No. 4 Torsi voltage.....

\$80.00 \$7.50 extra

Reversing switch Net weight, 3 lbs.; overall length, 111/2"; shipping weight, 4 lbs.

No. 10 SCRUGUN

POSITIVE AND ADJUSTABLE CLUTCH SCREWDRIVERS



Extremely compact, highly versatile, surprisingly powerful; for production screwdriving in cabinet, wide size range in machine screws, wood screws and self-tapping screws. Structural features same as HOLGUN.

Capacity: Wood screws—Up to No. 10 x 2"; Self-tapping Screws—Up to No. 12; Machine Screws and Nuts—Up to 14" diameter.

Standard spindle Speed—(No-load), 750 R.P.M. Optional Speeds—(No extra cost), 500, 1000, 1500 R.P.M. Equipped with quick-change chuck, ¼" hex. socket.

No. 10 POSITIVE CLUTCH SCRUGUN

Has positive-type clutch which permits free spindle to idle until bit "finds" screw slot.

Net weight, 3½ lbs.; overall length, 8¾"; shipping weight, 4¾ lbs. Price, complete, specify voltage—(Cat. No. 402)..... \$55.00

No. 10 ADJUSTABLE CLUTCH SCRUGUN (ILLUSTRATED)

Automatically drives every screw to uniform depth. Double clutch "cushions" the torque and relieves operator of any twisting motion as screw is driven home. Free spindle idles until operating pressure is applied.

Net weight, 3¾ lbs.; overall length, 10¼"; shipping weight, 5¼ lbs. Price, complete, specify voltage—(Cat. No. 350)..... \$68.00

No. 10 RIGHT-ANGLE SCRUGUN



By adding the advantages of the right-angle drive to the No. 10 Scrugun, "corner" work, limited clearance and other obstacles to the efficient use of the straight-drive unit are overcome. See master catalog for available heads. Capacity: Machine screws and nuts, up to $\frac{1}{4}$ " diameter; Self-tapping screws, up to No. 12.

No-load Speed, 500 R.P.M.*			
	Standard Unit	Bonnet† Grip	Paddle† Switch
Weight: Net	41/2 lbs.	51/4 lbs.	5¼ lbs.
Shipping	6 lbs.	7 lbs.	7 lbs.
Overall length	1034"	1418"	141/8"
Cat. No	374	390	391
Price, complete with one head-			
No. 100 to 108 Heads	\$ 93.00	\$ 98.00	\$101.00
No. 150 to 152 Heads	101.00	106.00	109.00
No. 156 Head	113.00	118.00	121.00
Reversing Switch-Paddle Switch	and Bonnet	Grip units only.	\$7.50

*Optional Speeds (no extra charge)-350, 750 or 1000 R.P.M. These units similar to Center-Drive Scrugun.

No. 10 CENTER-DRIVE SCRUGUN

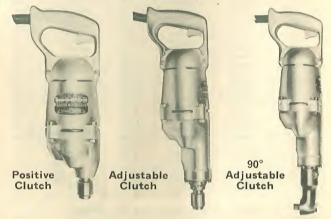


Ideal for operation in suspended position. Center spindle improves "aim"; bonnet grip or paddle switch arrangements eliminate handles: operates in reverse at full power when equipped with reversing switch. Net weight, 434 lbs.; overall length, 131/2", shipping weight, 6 lbs. Other specifications same as No. 10 Scrupping

Price, 10 Adjustable Clutch No. 380)	Scrugun-with Bonn	et Grip-(Cat. \$73.00
With Paddle Switch—(Cat. Price, 10 Positive Clutch No. 403)	Scrugun-with Bonne	et Grip-(Cat. 60.00

With Paddle Switch—(Cat. No. 404)	•
	٦.
(Cat. 140, 404)	,
Reversing Switch for No. 10 Center Drive Scrugups \$7.50	a.

No. 14 and No. 18 SCREW DRIVERS



Nos. 14 and 18 Screw Drivers are capable of constant production in screw driving operations in metal or wood, nut tightening, boat building, body work, assembling and crating. Have \mathcal{V}_{16}'' hex. socket chuck and can be equipped with reversing switch for disassembly work.

No. 30426 Auxiliary Side Handle for No. 1 No. 30427 Auxiliary Side Handle for No. 1	4 Screw Drivers	\$2.75 extra \$2.75 extra
Capacities:	No. 14	No. 18
Wood Screws	14 x 2 ¹ / ₂ "	18 x 31/6"

Self-tapping Screws	516" Dia.	3/8" Dia.
Lag Screws	1/4 " x 2"	516" x 3"
Machine Screws and Nut	3/8" Dia.	1/2" Dia.
Standard Voltage-110 or 220 On special orde	195 on 940 wolte	72 Dia.

Standard No-load Speed 500 R.P.M.*

No. 14 POSITIVE CLUTCH DRIVER

Pin-type clutch permits spindle to idle until bit finds screw slot. Throws out when operating pressure is released.

Net weight, 634 lbs.; overall length, 1314", shipping weight, 9 lbs. Price, complete, specify voltage—(Cat. No. 53)..... *Special Speeds—750, 1000 or 1600 R.P.M. \$65.00\$2.50 extra

No. 14 ADJUSTABLE CLUTCH DRIVER

Adjustable clutch adapts driving torque to specific operation, insuring uniform results. Spindle idles until operating pressure is applied.

Net weight, 8 lbs.; overall length, 15½"; shipping weight, 12 lbs. Price, complete, specify voltage—(Cat. No. 169)......\$90.00 *Special Speeds—750, 1000 or 1600 R.P.M......\$2.50 extra

No. 14-90° ANGLE ADJUSTABLE DRIVER

Several 90° angle heads with various shanks or sockets, and adjustable clutch feature adapt this unit to many special assembly operations in hard-to-reach places. See Master Catalog for available heads, and Cat. numbers.

Net weight, 91/2 lbs.; overall length, 181/4", shipping weight, 13 lbs	s.
Price, complete, with one head-(except 305), specify voltage	\$118.00
With No. 305 Head	
*Special Speeds-350 or 700 R.P.M.	\$2.50 extra
Reversing Switch for all No. 14 Drivers	\$7.50 extra
	CALLA

No. 18 SCREW DRIVERS ON NEXT PAGE



SCREW DRIVERS (Continued)

No. 18 POSITIVE CLUTCH DRIVER

Positive clutch permits spindle to idle until operating pressure engages clutch jaws. Kicks out when pressure is released.

\$77.00 \$2.50 extra

No. 18 ADJUSTABLE CLUTCH DRIVER

Selectivity of adjustable clutch and power of this unit ideal for tough production work. Clutch automatically releases each screw at uniform depth. Spindle idles until pressure is applied.

\$98.00 \$2.50 extra

No. 18-90° ANGLE ADJUSTABLE DRIVER

Limited clearance, corner work and other obstacles to production screw driving and nut running are overcome by the various 90° angle heads and adjustable clutch. Several interchangeable heads, with various shanks or sockets. See Master Catalog for Head Specifications and Code Numbers.

Net weight, 12 lbs.; overall length, 195%"; shipping weight, 18 lbs.	
Price, specify voltage, with one right-angle head (except 305)\$126.00	
With No. 305 Head	
*Special Speeds-350 or 700 R.P.M	
Reversing Switch for all No. 18 Drivers \$7.50 extra	



The pin-type clutch in the spindle of the Positive unit automatically disengages when driving pressure is released. In the Adjustable unit the clutch automatically releases each screw at the same torsion point, assuring uniform results. Free spindle idles until operating pressure engages the clutch jaws. Adjustment of tension is quickly made.

For heavy duty screw driving and production assembly nut tightening. Has quick-change chuck with $\frac{3}{2}g''$ hex. socket. Can be equipped with reversing switch. End switch handle is optional at no extra cost.

Capacity: Machine screws and nuts-3/8" diameter; lag screws-up to 3/8" x 41/2" long.

Standard No-load speed, 500 R.P.M.	L
Special Speeds-350 R.P.M. \$5.00 extra	
Reversing Switch	L

5%" POSITIVE CLUTCH NUT RUNNER (Illustrated)

With Side Switch Handle-(Cat. No. 55)..... \$140.00 140.00

5%" ADJUSTABLE CLUTCH NUT RUNNER

5%"-90° ANGLE ADJUSTABLE NUT RUNNER

Can be equipped with any of 4 driving heads with various shanks or sockets. See Master Catalog for Head specifications and Cat. Numbers. Net weight, 281/2 lbs.; overall length, 241/2"; shipping weight, 38 lbs. Price, specify voltage, with any one right-angle head...... Standard Voltage (All above units)—110 or 220. On special order 125 or 240 volts. Universal Motors. \$200.00

7/8" ELECTRIC NUT RUNNER POSITIVE, ADJUSTABLE AND 90° ANGLE

The most powerful unit for production assembly work. Equipped with quickchange chuck with $\frac{5}{6}$ " hex. socket. Can be equipped with reversing switch. Right angle unit can be had with end switch handle instead of side switch and spade handle, no extra cost.

Capacity: Machine screws and nuts-up to 78 diameter;	lag screws—up to
$\frac{1}{2}$ " x 5 $\frac{1}{2}$ " long.	
Standard No-load Speed, 500 R.P.M.	
Special Speeds-350 or 900 R.P.M.	
Reversing Switch	\$10.00 oxtro

7/8" POSITIVE CLUTCH NUT RUNNER

Net weight, 35 lbs.; overall length, 2134"; shipping weight 43 lbs. (Cat. No. 56) \$170.00

7/8" ADJUSTABLE CLUTCH NUT RUNNER (Illustrated)

Net weight, 47½ lbs.; overall length, 26%"; shipping weight, 57 lbs. \$200.00

⅓"−90° ANGLE ADJUSTABLE NUT RUNNER

Can be equipped with either of 2 driving heads, with various shanks or sockets. Net weight, 521/2 lbs.; overall length, 283/4"; shipping weight, 65 lbs. Price, with No. 505 Right Angle Head \$270.00 Price, with No. 506 Right Angle Head \$270.00

1" ELECTRIC NUT RUNNER

A positive clutch driver with low spindle speed and exceptionally high torque. Can also be supplied with solid spindle and $\frac{3}{4}$ chuck for heavy duty drilling and slow speed reaming.

Standard Voltage (All above units)—110 or 220. On special order 125 or 240 volts. Universal Motors.

NEW-3%" IMPACT WRENCH

The Electric Impact Wrench is a completely new unit for rapid tightening and removal of nuts, bolts and cap screws. 'In tightening operations, the Wrench spins a free-running fastener to a seating position by high speed direct drive; immediately the clutch throws into operation a rapid, positive hammering action which tightens the fastener with thousands of quick, sharp blows per minute. Just a few seconds of this positive impacting is all that's needed for maximum tightness. And there is practically no torque reaction to the operator —no uncomfortable jarring or twisting—no "fighting" the Wrench to get results.

To remove fasteners—even the stubborn "frozen" ones—flip the convenient reversing switch and the impact mechanism hammers the part loose, then spins it off quickly by direct drive. The action and power of the Wrench are the same in either direction. And the motor cannot be stalled—even if the spindle is stopped "dead"—so there's no danger of overload or "burn-out". With all this power and performance, the Impact Wrench is light and perfectly balanced. Sturdy cast-aluminum housings combine strength and lightness; a comfortable pistol-grip side handle contains the instant-release trigger switch; the toggle reversing switch is conveniently located in a recess above the handle for thumb operation. And the full-powered universal motor is ball-bearing mounted and amply ventilated. All spindles and gears are of special heat-treated alloy steel. The Impact Wrench is conservatively rated to drive and loosen nuts, bolts and cap screws up to $\frac{3}{6}$ " thread size.



Catalog No. 535. Impact Wrench with Socket Set (specify voltage)..\$109.00



STANDARD SCREW DRIVER BITS

With 7/16" Hex. Shanks-for No. 14 and No. 18 Drivers

With 1/4" Hex. Shanks-For Torsimeter and Scruguns

For use with these Screw Types and Sizes	Bit Length	Bit and Stan'd Finder Assem. No.	Price Each	Bit Only No.	Price Each	Stand- ard Finder No.	Price Each
Nos. 4, 5, 6, 7 Wood Nos. 4, 5, 6 Machine Nos. 4, 5, 6 Sheet Metal	2 ¹ 2" 4" 6" 8" 10"	5345 15085 15086 15087 15088	\$1.55 2.05 2.15 2.25 2.35	5104 15049 15050 15051 15052	\$0.90 1.40 1.50 1.60 1.70	5103	\$0.60
Nos. 8, 9 Wood No. 6 Stove Nos. 7, 8 Sheet Metal No. 8 Machine No. 10 Filister	21/2" 4" 6" 8" 10"	5346 15089 15090 15091 15092	1.55** 2.05 2.15 2.25 2.35	5106 15053 15054 15055 15056	.90** 1.40 1.50 1.60 1.70	5105	.60
Nos. 10, 11 Wood No. 10 Sheet Metal No. 10 Machine (except Filister) No. 12 Filister	21.2" 4" 6" 8" 10"	5330 15093 15094 15095 15096	1.55** 2.05 2.15 2.25 2.35	5108 15057 15058 15059 15060	.90** 1.40 1.50 1.60 1.70	5107	.60
No. 12 Wood No. 12 Sheet Metal No. 12 Machine (except Filister) 1/4" Filister	21/2" 4" 6" 8" 10"	5343 15097 15098 15099 15100	1.55** 2.05 2.15 2.25 2.35	5110 15061 15062 15063 15064	.90** 1.40 1.50 1.60 1.70	5109	.60
No. 14 Wood No. 14 Sheet Metal 14" Machine (except Filister)	21/2" 4" 6" 8" 10"	5344 15101 15102 15103 15104	1.55** 2.05 2.15 2.25 2.35	5112 15065 15066 15067 15068	.90** 1.40 1.50 1.60 1.70	5111	.60
No. 16 Wood 5⁄6" Filister }	21/2" 4" 6" 8" 10"	5329 15105 15106 15107 15108	1.55** 2.05 2.15 2.25 2.35	5114 15069 15070 15071 15072	.90** 1.40 1.50 1.60 1.70	5113	.60
No. 18 Wood % "Sheet Metal }	25/8" 4" 6" 8" 10"	5364 15109 15110 15111 15112	1.80 2.30 2.40 2.50 2.60	5116 15073 15074 15075 15076	.95 1.45 1.55 1.65 1.75	5115	.80
% Machine (except Filister) No. 20 Wood % Filister	234" 4" 6" 8" 10"	5366 15113 15114 15115 15116	1.90 2.40 2.50 2.60 2.70	5118 15077 15078 15079 15080	1.00 1.50 1.60 1.70 1.80	5117	.85
No. 24 Wood 3%" Machine (except Filister) }	234" 4" 6" 8" 10"	5369 15117 15118 15119 15120	2.25 2.75 2.85 2.95 3.05	5120 15081 15082 15083 15084	1.10 1.60 1.70 1.80 1.90	5119	1.10

*All lengths shown are the do not indicate overall leng **See quantity price table	ths.	from	chuck	to end	of bit; they	-

BIT EXTENSIONS

Screw Driver Bit Extensions are available in various lengths, with $\frac{1}{24}$ or $\frac{\tau}{16}$ shank to fit Torsimeter, Scrugun or Screw Driver Chuck, and a chuck socket to take standard bits and socket wrenches. These Extensions greatly reduce bit replacement costs, where long bits are needed.

Cat. No.	Length	Shank Size	Price Each	Cat. No.	Length	Shank Size	Price Each
22581 22539 22540 22323	4" 6" 8" 10"	$\frac{1/4''}{1/4''}$ $\frac{1}{4''}$ $\frac{1}{4''}$	\$1.80 1.80 1.90 1.90	15023 14989 5287 5288	4" 6" 8" 10"	7 /16 // 7 /16 // 7 /16 // 7 /16 //	\$1.65 1.80 1.95 2.15

SCREW DRIVER BITS FOR PHILLIPS HEAD SCREWS FOR SCRUGUN, TORSIMETER, 14 AND 18 SCREW DRIVERS ng the Phillips head slot instead of the lifferent slot sizes

A special bit is required for drivin screw, which has a cross form a conventional slot and four d designated as Nos. 1, 2, 3 and 4.

SLOT SIZE	CAT. NO.	UNIT USED WITH	Price Each	PRICE EACH BOX OF 6
No. 1	. 17922	Torsimeter and Scrugun	\$.70	\$.65
No. 1	18938	Nos. 14 and 18 S.D.	.90	.85
No. 2	17923	Torsimeter and Scrugun	.70	.65
No. 2	17924	Nos. 14 and 18 S.D.	.90	.85
No. 3	21366	Torsimeter and Scrugun	.70	.65
No. 3	17925	Nos. 14 and 18 S.D.	.90	.85
No. 4	17926	Nos. 14 and 18 S.D.	.90	.85

For use with these Screw Types and Sizes	Bit Length	Bit and Stan'd Finder Assem. No,	Price Each	Bit Only No.	Price Each	Stand- ard Finder No.	Price Each
Nos. 2, 3 Wood No. 2, 3 Machine No. 2 Sheet Metal No. 4 Filister	114" 234"			18051 22396	\$0.70** .90**	18050† 20482‡ 22397† 23979‡	\$0.60 .60 1.00 1.00
Nos. 4, 5, 6, 7 Wood No. 4, 5, 6 Machine Nos. 4, 5 Sheet Metal No. 6 Sheet Metal	$\frac{1!4''}{234''}$	17690 22111	\$1.55**	13208 17688 22108	.70** .90** 1.25	13210‡ 15588† 5103 5103	.60 .60 .60 .60
Nos. 8, 9 Wood No. 6 Stove; 8 Mach Nos. 7, 8 Sheet Metal No. 10 Filister Nos. 10, 11 Wood	$ \begin{array}{c} 1!_4'' \\ 23'_4'' \\ 5!_4'' \\ 11'_4'' \end{array} $	13356 13469	1.55** 1.90	13207 13353 13470	.70** .90** 1.25	13209‡ 16529† 5105 5105	.60 .60 .60 .60
No. 10 Sheet Metal No. 10 Machine No. 12 Filister No. 12 Wood, Sheet	114" 234" 234" 234"	18593	1.65**	15475 23494 18594	.80** 1.00** 1.00**	15469‡ 23493‡ 5107‡	.60 1.00 .60
Metal, Machine	$\frac{1!_4''}{2!_4''}$	21731	1.75**	16772 21730	.90** 1.10**	16773‡ 5109‡	.60 .60

*QUANTITY PRICES—Standard Bits and Bit-Finder Assemblies in this group are packed and stocked in boxes of six. We recommend ordering in standard packages or multiples thereof and offer special quantity prices which apply on designated quantities, all of one size only. Used with Scrugun only. Used with Torsimeter and 90° heads.

\$0.50 .55 .65 .70	\$0.45 .50 .60	\$0.40 .45 .50 .55
.55		.45
.65	.60	.50
.70	.65	.55
.80	.70	.60
1.10	1.00	.85
1.20	1.05	.90
1.30		1.00
	1.20	1.20 1.05

SOCKET WRENCHES

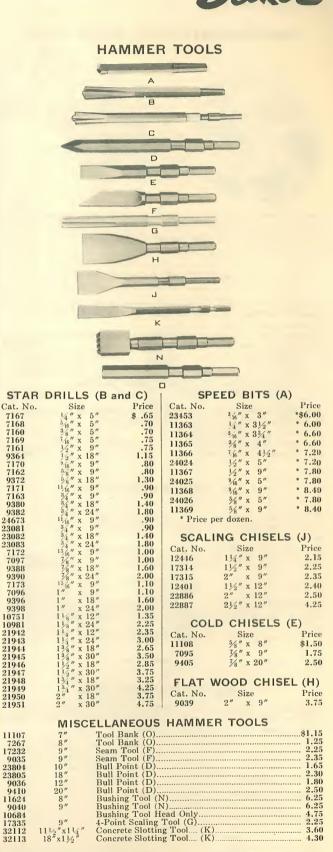
MALL SHANKS

Size Socket	Drive Opening	Cat. No. Hex. Socket	Price Each	Cat. No. Double Sq.	Price Each	HEXAGON
1/1" 9/1" 32" 5/1"		$20512 \\ 20513 \\ 20514$	\$.70 .70	20519	\$.85	
5/16"	1/4 1/ 11	20514	.70	20520	.85	DOUBLE SQUARE
3/8"	14"	20516	.70	20522	.85	SOCKETS FOR SMALL SHA
7 16 "	14"	20517	.70	20546	.85	(The second sec
1/2"	14"	20518	.75	22915	.90	
9 16	1/11/11/11/11/11/11/11/11/11/11/11/11/1	22917	.80	00760	1.00	
14	78	22762 22764	.75	22763	1.00	frind and the
3/16	3/8"	22766	.75	22765 22767	1.00	
3/8 7/6"	1/2"	22768	.75	22769	1.00	DOUBLE SQUARE
1/2"	1/2"	22770	.75	22771	1.00	
9 16	1/2" 1/2" 1/2" 1/2" 1/2"	22772	.75	22773	1.00	
5.8"	1/2"	22774	.75	22775	1.00	
11 16	1/2"	22776	.75	22777	1.00	
3/4 //	1/2"	22778	1.00	22779	1.30	HEXAGON
716	1/2"	22780	1.00	22781	1.30	
7/8 //	12"	22782 22784	$1.00 \\ 1.25$	22783 22785	1.50	SOCKETS FOR LARGE SHANKS
1 // 16	1/2" 1/2" 5/8"	22786	1.35	22785	$1.60 \\ 1.75$	
11,16"	5/8"	22788	2.00	22789	2.50	(i) (ii)
11/8"	58"	22790	2.25	22791	2.75	
13 16"	58"	23298	3.50	23297	5.50	1 1 0
11/1"	5.8"	23300	3.50	23299	5.50	
15/16"	5/11	23302	4.00	23301	6.00	
13/8" 17/16"	5811	23304	4.50	23303	6.50	
17,16"	5.8"	23306	5.00	23305	7.00	
11/2"	5/8 5/8	23308	5.00	23307	7.00	0
158"		25943	5.50			
		SHA	NKS			

Size Sq. Drive	Size Hex. End	Overall Length	Catalog Number	Price Each		
1/4/ <i>m m m m m m m m m m</i>	144 m m m m m m m m m m m m m m m m m m	2" 6"" 234" 5" 5" 5" 3" 5"	20510 20511 22792 22793 22794 22795 22796 22796 22797 22798 22799	\$1.00 1.50 1.50 2.25 2.25 2.25 2.50 2.75 3.00	J J	ANKS



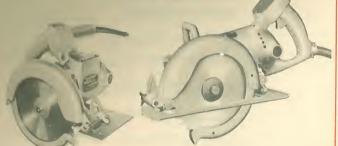
PORTABLE ELECTRIC HAMMERS 2" Hammer mr : Completely self-contained units operated by universal motors. Greatly speed up any drilling or cutting operations requiring a hammer action. For drilling and channeling in concrete, stone or brick. Removing form marks from concrete surfaces. Lines, etc. Removing scale in boilers, tanks, etc. 1/2" PORTABLE ELECTRIC HAMMER $\begin{array}{c} 72 \\ \hline & 120 \\ \hline &$ 3/4" PORTABLE ELECTRIC HAMMER 2" PORTABLE ELECTRIC HAMMER HAMMER ACCESSORIES DUST SHIELD Hammer Lubricating Oil 22926 3 oz. Can \$.30 22930 1 Pound Container .65 22931 2 Pound Container 1.25 32906 5 Pound Container 2.75 CHUCK WRENCH **Carrying Cases** 18296 for ½" Hammer \$10.00 18389 for ¾" Hammer 12.00 21003 for 1¼" Hammer 15.00 18679 for 2" Hammer 17.00 TURNING HANDLE **Chuck Wrench-Turn Handle** For complete data on use see Master Catalog. TOOL RETAINING SPRING Chuck Wrench Chuck Wrench Chuck Wrench Chuck Wrench Chuck Only Turning Handle сниск 22587 \$4.50 4.75 5.00 5.75 5.00 2.75 23806 22749 22754 DRIFT KEY 99510 21726 DRIFT KEY Used to remove taper-shank bits from socket of Chuck Wrench. Cat. No. 7276, for all Chuck Wrenches..... .\$.35 TOOL RETAINING SPRINGS DUST SHIELDS Used in over-head drilling to prevent dust from entering nose piece and mechan- Oseu in terminer. ism of Hammer. Cat. No. 17746, for Chuck Wrenches Nos. 22587, 23806 and 22510......\$.35 Cat. No. 17747, for Chuck Wrenches Nos. 22749 and 22754.........\$.35



Ask for Hammer Handbook, for complete information on construction, operation, and applications of Black & Decker Hammers.



PORTABLE ELECTRIC QUICK-SAWS



Complete safety, adjustable depth of cut, adjustable angle; increased power, perfect balance, less weight, 2-pole instant release switch, sturdy gear and bearing construction; check these features of the Quick-Saw line.

7-inch PORTABLE QUICK-SAW

(Depth of Cut-23/6")

The most widely useful size. Handles all popular lumber sizes. Diameter Saw Blade, 714"; No-load Speed, 3200 R.P.M. Maximum vertical depth of cut, 23/8". Net weight, 1834 lbs.; overall length, 171/2"; shipping weight, 38 lbs. Price, complete, specify voltage-(Cat. No. 260).....\$125.00

8-inch PORTABLE QUICK-SAW (Depth of Cut-25%")

Especially adapted for quick cut-off work; well balanced for one-hand operation. Diameter Saw Blade, 81/6"; No-load Speed, 5000 R.P.M. Maximum vertical depth of cut, 25%".

Net weight, 2014 lbs.; overall length, 1314"; shipping weight, 45 lbs. Price, complete, specify voltage-(Cat. No. 382).....\$145.00

9-inch PORTABLE QUICK-SAW

(Depth of Cut-31/8")

A popular large size unit for work requiring greater depth of cut. Diameter Saw Blade, 914"; No-load Speed, 2500 R.P.M. Maximum vertical depth of cut, 31/8". Net weight, 26 lbs.; overall length, 1914"; shipping weight, 54 lbs.

Price, complete, specify voltage-(Cat. No. 375).....\$155.00

STANDARD EQUIPMENT: (all units) 3-wire cable and plug, Combination Rip and Cross Cut Blade, Carrying Case. Universal Motors, operate on A.C. or D.C.

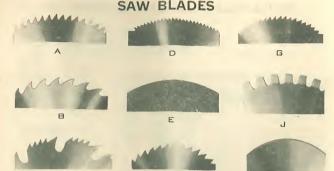
Standard Voltage-110 or 220. On special order 125 or 240 volts.

NEW QUICK-SAW ARM

Quick-Saw Arm quickly converts portable Quick-Saw to versatile radial Saw; multiplies utility of portable saw, improves speed and accuracy on any of these cuts: cross-cut, mitre, bevel, compound angle, ripping.

Quick-Saw Arm clamps to carpenter's saw horse or table. All Quick-Saws fit the adjustable Saw Carriage and all depth and angle adjustments of Saw can be made while in the Arm. Height, angle and balance adjustments of Saw Arm are quickly made and regulated on the work-head column.

Net Weight (Quick-Saw Arm only), 421/2 lbs. Maximum Travel on cutting stroke, 201/2". Depth of cut-21/4" with 7" Quick-Saw 21/2" with 8" Quick-Saw 3" with 9" Quick-Saw Angle of cut-0° to 180° Bevel Angle-0° to 45°



CROSSCUT BLADE (A)

Designed for fast, smooth cross-cut-ting. Makes a smoother cut than the Combination Blade furnished as standard equipment.

Cat.	Diad	TT	D .
	Blade	Use with	Price
No.	Diam.	Elec. Saw	Each
19773	71,"	7-inch	\$5.25
23160	818"	8-inch	6.50
22740	914"	9-inch	7.35

NON-FERROUS METAL CUTTING BLADE (D)

This Blade is for use on non-ferrous metals only. Has teeth shaped and set especially for cutting soft, light gauge non-ferrous metals, including lead

Cat.	Blade	Use with	Price
No.	Diam.	Elec. Saw	Each
21868	714"	7-inch	\$5.85
24073	815"	8-inch	7.00
22744	914"	9-inch	7.65

NAIL CUTTING BLADE (F)

	For openin up floors, w	g boxes and crat where nails are en	es, ripping countered.
	Cat. No.	For Saw	Price
	20360	7-inch	\$ 8.25
	23159	8-inch	9.35
ļ	22741	9-inch	10.00

FRICTION SAW BLADE (J)

For cutting corrugated galvanized sheet. Cuts faster, with less dirt than abrasive disc. Blade is taper-ground for clearance.

Cat.	Blade	Use with	Price
No.	Diam.	Elec. Saw	Each
4771	6″	7-inch	\$ 7.00
4772	7"	8-inch	7.90
4773	8″	9-inch	8.75

WET ATTACHN

Forked nozzle sprays we both sides of blade—co regulates spray. Complete length of hose and a fi couples to standard type w 31006-Wet Attachment

COMBINATION RIP AND **CROSSCUT BLADE (B)**

A particularly fast cutting blade for ripping in all kinds of wood, and for general service cross-cutting. Proper size supplied as standard equipment with all Electric Saws.

Cat.	Blade	Use with	Price
No.	Diam.	Elec. Saw	Each
19774	714"	7-inch	\$5.25
23161	818"	8-inch	6.50
22728	914"	9-inch	7.35

PLANER OR MITRE BLADE (C)

For making very smooth cuts, both rip and cross-cut, on interior finish and trim. Cat. Blade Use with Price

No.	Diam.	Elec. Saw	Each
20362	714"	7-inch	\$ 8.25
23158	818"	8-inch	10.00
22743	914"	9-inch	11.25

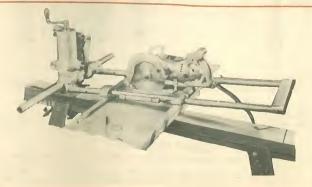
ABRASIVE DISC (E)

For saw	ing and cutting sla , tile, Transite, an	ate, marble, d porcelain.
Cat. No 19766 11947		Price \$2.65 2.95
22739	9-inch 9 ferrous metals in	3.65
23582 23583 23584	7-inch 8-inch 9-inch	\$2.65 2.95 3.65
~000.1	9-men	5.05

Diamond RIM BLADES (K)

For cutting concrete, transite, asbestos cement, siding and rooing, tile, etc. Longer life than abrasive disc with no tendency to break. Copper disc with diamond particles locked in-to the rim. USE WITH WET AT-TACHMENT.

Cat.		Thick-	Price
No.	Dia.	ness	Each
	7″	.040	\$ 9.00
			12.00
			13.20
			$15.60 \\ 14.40$
30851	9″	.064	18.00
	No. 30846 30847 30848 30849 30850	No. Dia. 30846 7" 30847 7" 30848 8" 30849 8" 30850 9"	No. Dia. ness 30846 7" 040 30847 7" 050 30848 8" 050 30848 8" 064 30850 9" 050



2.2.2.



BENCH GRINDERS are equipped with ball bearings, protected from dust and set to minimize spindle vibration; tool rests adjustable for wheel wear; strong wheel guards, completely enclosed (except on 6" Standard); wide, sturdy base with rubber feet; adjustable spark shields on 8" and 10" Grinders. Heavy-Duty Grinders can be equipped with eye shields and pedestals; and can be used as combination grinders for grinding and wire brushing. Motors are not universal; supplied only for voltages and currents listed under each unit. Spindle no-load speeds are: 25 cycle, 1500 R.P.M.; 50 cycle, 3000 R.P.M.; 60 cycle, 3600 R.P.M.; (except 10" unit, which is 50 cycle, 1500 R.P.M.; 60 cycle, 1800 R.P.M.).

6" STANDARD BENCH GRINDER



Wheel size, $6'' \ge \frac{5}{8}'' \ge \frac{1}{2}''$. Net weight, $31\frac{1}{2}$ lbs. Motor Rating, 1/4 H.P.

(1/5 H.P. for 25 cycle). For all standard A.C. 1-phase volts and cycles only. Not

for D.C. Standard Equipment-1 grinding wheel and 1 wire

Price, complete, specify voltage and cycle.....\$38.00

6" HEAVY DUTY BENCH GRINDER

wheel brush.



Wheel size, 6" x 3/4" x 1/2". Net weight, 45 lbs. Motor Rating, 1/3 H.P.

Supplied for 50-60 cycle, 1 phase A.C. 110 or 220 volts.

Standard Equipment-2 grinding wheels; 1 medium, 1 fine.

(Wheel guards are wide enough to accommodate a standard 3-section wire wheel brush without any change in the guard).

Price, complete, specify voltage and cycle-(Cat. No. 67).....\$58.00

ILLUMINATED EYE SHIELDS

New Illuminated Eye Shields have been developed for use with our 6" Heavy Duty, 8" and 10" Bench Grinders. Shields are furnished with adjustable brackets and bolts for attachment to the Wheel Guards. Glass is shatter proof and work is illuminated from both sides of the eye shield. If the grinder is of voltage other than 110 or 220, eye shields may be purchased with individual cords, plugs and switches for use in 110 or 220 volt receptacles. Otherwise, the eye shields may be operated with the main grinder switch.

- Cat. No. 30050 An assembly of a pair of 110 volt illuminated Eye Shields, to be connected to and operated by the 110 volt Bench Grinder switch......\$19.00

Bench Grinder switch	
FOR ALL BENCH GRINDERS	FOR 8" BENCH GRINDERS
Cat. No. Item Price	
19115 Cutter Type Wheel	Cat. No. Item Price
dresser\$ 1.40 21961 Diamond Wheel dresser 5.00	6666 Spindle Ext. R.H\$ 5.50
21901 Diamond Wheel dieser stor	6667 Spindle Ext. L.H 5.50
FOR 6" BENCH GRINDERS 6405 ½" Thrd. Chuck R.H\$ 8.00	
0405 1/2" I nrd. Chuck R. n \$ 0.00	
6664 Spindle Ext. R.H 4.00	POD 10% DENGUL COLUMNS
6665 Spindle Ext. L.H. 4.00	FOR 10" BENCH GRINDERS
3564 Tprd. Buff Spindle L. H. 5.00	
3565 Tprd. Buff Spindle R.H. 5.00	12297-C Spindle Fxt. R.H\$ 8.00
	11

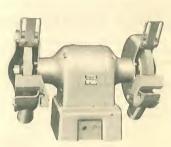


PEDESTAL For 6" & 8" Grinders \$28.00 For 10" Grinder \$32.00

BENCH GRINDER

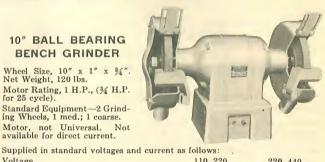
available for direct current.

for 25 cycle).



Wheel size, 8" x 38" x 58". Net weight, 82 lbs. Motor Rating, 3/4 H.P. Standard Equipment-2 Grinding Wheels; 1 med., 1 fine. Motor not universal. Not available for direct current. Supplied in standard voltages and currents as follows: Voltage..... 110 or 220 220 or 440 Phase..... 3 Cycle..... 50-60 50-60

\$98.00 Price, specify voltage, phase and cycle..



.00

.54 .52

Voltage	110, 220	220, 440
Phase	1	3
Cycle	25, 50-60	50-60
Price, specify voltage, phase and cycle		\$138.



The Back-Stand Grinding method employs a belt, bringing many square inches of abrasive in contact with the work. Longer abrasive life results in cooler grinding. A compress contact wheel, mounted on the grinder spindle, has a cushioning action allowing the abrasive belt to conform to the shape of the piece being ground. Idler unit has swivel and tension adjustments; can be used on right or left hand side of grinder.

BACK STAND IDLER ASSEMBLY \$37.50 Cat. No. 30328 COMPRESS CONTACT WHEELS Catalog No. 30897 6" x 21/2" x 5/8" Contact Wheel for use on 8" Bench Grinder.....\$15.00 Catalog No. 30898 8" x 21/2" x 3/4" Contact Wheel for use on 10" Bench \$19.40 Grinder..... GRIT ABRASIVE BELTS Catalog No. 31028 60" x $2\frac{1}{2}$ " x No. 36 Grit Abrasive Belt..... Catalog No. 31029 60" x $2\frac{1}{2}$ " x No. 36 Grit Abrasive Belt.... Catalog No. 31030 60" x $2\frac{1}{2}$ " x No. 150 Grit Abrasive Belt.... .66

8" BALL BEARING BENCH GRINDER



PORTABLE ELECTRIC SANDERS

Electric Sanders are most versatile surfacing tools, used with a wide variety of attachments for sanding, grinding, wire brushing, rubbing and planing operations on metal, wood, stone, tile, concrete and many other surfaces.

These Sanders are fully powered with "universal" motors; perfectly balanced, with reversible side handles for right or left hand use; spiral bevel gears of heat-treated alloy are matched and lapped; bearings are greasesealed.

Standard Voltage-110 or 220. On special order 125 or 240 volts.

7" STANDARD SANDER (EQUIPPED WITH SPINDLE LOCK) SHOWN ABOVE

Amply powered and constructed for constant production service on all types of metal and wood surfacing.

Diameter of disc			
No-load speed			
Weight: Net			
Overall length (not including p			
Price, complete, specify voltag	e-(Cat	No. 92)	\$67.00
Price, complete, specify voltag	e-(Cat.	No. 92)	\$67.00

7" HEAVY DUTY SANDER (EOUIPPED WITH SPINDLE LOCK)



Designed to meet the demand for a universal motored sander of superior power for production metal finishing.

Diameter of disc	7″
No-load speed	
Weight: Net	lbs.
Overall length (not including pad)	
Price, complete, specify voltage—(Cat. No. 93)	.00

9" HEAVY DUTY SANDER (EQUIPPED WITH SPINDLE LOCK)



A new Heavy Duty tool designed for constant production-line use with 9-inch abrasive discs. New, fast spindle lock for quicker change of pads and abrasive discs. Spiral-bevel gears. Switch and commutator sealed against dust and grit. Bearings also grease-sealed against dust and dirt.

Diameter of disc.	
No-load speed	.4000 R.P.M.*
Weight: Net	
Overall length (not including pad)	
Price, complete, specify voltage—(Cat. No. 433)	\$92.00
*Optional Speed—5000 R.P.M.—No extra cost.	
Optional Speed—5000 1.1. MI No extra cost.	



Equipped with reservoir, thumb-operated pump and feeder tube which auto-matically applies Power-Glaze to the car surface while working. No stopping for hand application; no drying of liquid. Uniform results, more jobs per day. Increased power, correct speed, more torque, light weight.

No-load Speed, 1500 R.P.M.; Diameter of Pad, 7". Net weight, 103/ lbs.; overall length, 171/2". Price, complete, specify voltage-(Cat. No. 97).....

\$82.00

STANDARD ELECTRIC POLISHER

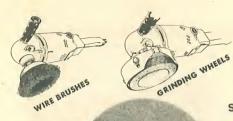




Made by us for use on Sanders to remove rust. scale and paint; to clean tanks and boat hulls; for cleaning castings and structural steel 5/8"-11 thread hub threads on Sander spindle.

		1168	I.c.								
No.	18056	4″	Wire	Cup	Brush,	for	7″	Standa	ard Sa	nder	\$2.50
No.	24353	5″	Wire	Cup	Brush	for '	7″	Heavy	Duty	Sander	3.00
No.	12398	6″	Wire	Cup	Brush	for S	9"	Heavy	Duty	Sander	3.50







SANDING DISCS

Sanding and abrasive discs can be furnished in a variety of grades and grains. Discs designated as "Open Grain" are especially suited for wood sanding (Nos. 16, 24 and 36 for removing paint and varnish); "Closed Grain" discs are for metal work.

GRADE	7-INCH S	SANDING I	Discs	9 ¹ / ₈ -Inch Sanding Discs			
Closed Grain	Cat.	List	Price	Cat.	List	Price	
	No.	Each	Per 100	No.	Each	Per 100	
16	17815	\$0.53	\$52.20	26458	\$0.70	\$69.60	
24	9990	.41	40.60	10719	.55	54.20	
36	9991	.40	39.70	10720	.54	53.20	
50	9992	.38	37.20	12153	.50	49.40	
60	18489	.36	35.20	18493	.48	47.20	
80	10485	.34	33.30	10721	.45	44.30	
100	12145	.34	33.30	12149	.45	44.30	
120	12146	.34	33.30	12150	.45	44.30	
150	12147	.34	33.30	12151	.45	44.30	
180	12148	.34	33.30	12152	.45	44.30	
Open Grain	14110		00.00	1.100			
16	15134	.53	52.20	15137	.70	69.60	
24	15135	.41	40.60	15138	.55	54.20	
36	15136	.40	39.70	15139	.54	53.20	
50	12011	.38	37.20	12131	.50	49.40	
60	18491	.36	35.20	18495	.48	47.20	
80	12012	.30	33.30	12132	.45	44.30	
120	12012	.34	33.30	12132	.45	44.30	
120	14015	.34	00.00	12100	.45	44.00	

All discs packed 25 to a box.

REPLACEMENT SANDER PADS AND PARTS

All pads and replacement assemblies are interchangeable on all Sanders and Polishers as the spindle diameter and thread is the same for all units of this group; $\frac{5}{6}''$ —11 thread.

No. 22589 5" Moulded Rubber Pad	2.50
No. 17687 7" Moulded Rubber Pad, complete	
No. 18329 7" Heavy Duty Moulded Rubber Pad	
No. 18330 9" Moulded Rubber Pad	
No. 14237 3" Flexible Pad, complete	
No. 14551 Replacement Pad for 3" Flexible Pad	1.15
No. 10279 Clamp Washer	.40

"KOOLFLEX" BACKING PADS



Light-weight, fabric-base, plastic-bonded discs provide greater flexibility, cooler operation and longer life on sanding applications. Used with No. 22589 Moulded Rubber Pad. For maximum flexibility, use one "Koolflex" pad with corresponding size abrasive disc. For "feathering" finish, use No. 31000 "Koolflex" pad with 9" abrasive. For more rigid backing use both sizes of "Koolflex" pads with 9" abrasive. Use with Special Clamp Washers listed below.

No. 31000 634" "Koolflex" Backing Pad	\$1.50
No. 31001 87/8" "Koolflex" Backing Pad	2.00
No. 31003 Spec. Clamp Washer-use either pad	
No. 31004 Extra-long Clamp Washer, to be used when both "I	Koolflex"

ABRASIVE DISC TRIMMER



Facilitates the complete use of abrasive discase, cutting them down to smaller diameters as outer surface is used up. Trimmer has adjustable center hole pilot on a calibrated swinging arm; a cutting wheel mounted on one-piece spindle and crank, and a base casting which can be screwed down to the bench. mplete. \$8.50

No. 21808 Abrasive Disc Trimmer, complete.... No. 21753 Replacement Cutter.....

SANDER AND POLISHER ATTACHMENTS • ACCESSORIES

SAUCER GRINDING WHEEL

For some metal grinding applications, the Sander equipped with a Saucer Grinding Wheel does smoother and faster work than a Portable Grinder. Saucer Wheels have $\frac{5}{3}$ "-11 thread bushing to fit spindle direct.

No. 24050	4" Saucer Grinding Wheel (for 7" Std. Sander)\$	4.85
No. 23444	5" Saucer Grinding Wheel (for 7" H.D. Sander)	6.90
No. 18039	6" Saucer Grinding Wheel (for 9" H.D. Sander)	9.00
No. 17329	Skirt Wheel Guard for H.D. Sanders	6.50

CUP GRINDING WHEEL

For smoothing welds and other metal surfaces. Use No. 10711 Spindle Extension to attach to Sander.

LAMBSWOOL BUFFING PAD AND BONNET

For cleaning and buffing lacquered finishes and for obtaining final high lustre after spraying. Attached direct to flexible pad of Polisher.

	No. 13086	Lambswool Buffing Pad for 7" Polisher individually boxed, each\$1.55	
		packed 6 to a carton, each 1.35	5
A	No. 13087	Lambswool Buffing Bonnett with Hood and Drawstring	5
0	No. 22176	Lambswool Buffing Bonnett (for use with Sponge Rubber Cushion)	
	No. 22174	7" Sponge-rubber Cushion 1.25	5
1		Long Clamp Washer only, for Sponge- rubber Cushion	
1			

RUBBING PADS

For rubbing down orange peel in lacquer finishes, etc. Attaches direct to flexible pad of Polisher.

No. 20619	7" Pile Fabric Rubbing Pad	1.65
	9¼" Pile Fabric Rubbing Pad	
	Felt Rubbing Pad for 7" Polisher or 7" Sander	
No. 10709	Felt Rubbing Pad for 9" Sander	2.50

POWER RUBBING COMPOUND

Applied with Polisher equipped with pile fabric pad, will quickly remove "orange peel" and spray pits from newly lacquered surfaces, giving a smoother, more uniform surface.

No. 31459	1-gal. container Power Rubbing Compoundper	gal.	\$2.25
	Case of six 1-gallon containers	gal.	1.95

POWER GLAZE

A special car-body cleaning and buffing compound, chemically and mechanically correct for use with Polishers. Cleans, burnishes and seals the surface in one quick, easy operation, leaving a hard, glazed surface with pores sealed against oxidation and corrosion. Use Heavy-Duty Power-Glaze for cars heavily coated with road scum, or with pigment deterioration. Standard Duty Power-Glaze gives best results on new cars or car surfaces in relatively good condition.

No. 31461	Heavy-Duty, Power-Glazeper gal.	\$2.85
	Case of six 1-gallon containersper gal.	2.45
No. 32486	Standard Duty Power-Glaze	2.85
	Case of six 1-gallon containersper gal.	2.45

POWER WAX

Power Wax used with the Polisher produces a hard, brilliant, waxed finish. Ideal for new or newly lacquered cars or to give an extra protective coating to cars cleaned with Power Glaze.

b. 31463	1-quart can of Power-Waxper qt. \$	1.50
	Case of six 1-quart containersper qt.	1.30

ROTARY PLANER HEADS

Perform many wood surfacing and shaping operations formerly done with jack-plane and adz. Two types of planer head are supplied; one with rounded surface for deep gouging, the other with flat face for surfacing and semi-finishing. These heads are interchangeable on the spindle of the 7'' Heavy-Duty and 9'' Heavy Duty Sander. For smoothing and fitting joints in concrete forms; surfacing boat hulls and decks, piers, floors, etc.; beveling and shaping beams and timbers, etc.

No. 14743 Set of two 5" Planer Heads, one Gouging and one Surfacing,

		complete with blades, packed in neat oak box	020.00
No.	14734	5" Gouging Planer Head, complete with blades	13.00
No.	14735	5" Surfacing Planer Head, complete with blades	13.00
No.	14733	Replacement Blade, Set of 3	1.90

.40

No



ELECTRIC DIE GRINDERS

For die shops, stamping plants, tool rooms; compact, powerful, rugged; equipped with $\frac{1}{4}$ single purpose chuck adaptable to variety of shaped wheels and burrs. Supplied with either bonnet grip or extended handle.

2" DIE GRINDER



Maximum Wheel Size*, 2" x ½" x ½"; No-load Speed, 19,000 R.P.M.	
Net weight, 21/2 lbs.; overall length, 9", with end handle 1434".	
Price, standard unit with end cap-(Cat. No. 288)	\$50.00
Price, with extended end handle-(Cat. No. 289)	53.00
Replacement and Extra Equipment—	
No. 20330 2" High-speed bonded Grinding Wheel	\$1.25
No. 20353 2" Wheel Guard	2.25
No. 21757 Wheel Arbor	1.50
No. 20285 Double End Wrench (%16" and 11/16")	
No. 21755 1/4" S. A. Chuck with 1/8" Reducing Sleeve	4.50
No. 21955 1/8" Reducing Sleeve Only, for No. 21755 Chuck	1.00
No. 20846 Tool Post Holder	6.50

2¹/₂" DIE GRINDER



Maximum Wheel Size*, $2\frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{1}{2}$ "; No-load Speed, 17,500 R.P.M. Net weight, 4 lbs.; overall length, $12\frac{1}{4}$ ", with end handle $16\frac{1}{6}$ ". Price, standard unit with Bonnet Cap, Switch in Cap—(Cat. No. 291),

specify voltage......\$55.00

Price, with Extended switch handle-(Cat. No. 290), specify voltage.... 58.00

REPLACEMENT AND EXTRA EQUIPMENT

No.	20329	21/2" High Speed Bonded Grinding Wheel	\$1.35
No.	26537	2½" Wheel Guard	. 2.75
No.	26361	Outer Wheel Washer	. 1.00
		Inner Wheel Washer	
		Double End Wrench (% and 11/6")	
		14" S. A. Chuck with 18" Reducing Sleeve	
		16" Reducing Sleeve only for No. 26533 Chuck	
		Tool Post Holder	

3" DIE GRINDER



Maximum Wheel Size*, $3'' \times \frac{1}{2}'' \times \frac{3}{8}''$; No-load Speed, 16,000 R.P.M. Net weight, 7 lbs.; overall length, $17\frac{3}{4}''$; shipping weight $11\frac{1}{4}$ lbs.

Price, with extended end handle—(Cat. No. 499), specify voltage.......\$60.00 *No wheels are supplied as standard equipment with Die Grinders. Wheel Guards, Wheel Arbors and maximum size Grinding Wheels can be furnished at extra cost. Ask your jobber about variety of mounted wheels and burrs for use with these units.

3" PORTABLE GRINDER



REPLACEMENT AND EXTRA EQUIPMENT FOR 3" DIE GRINDER AND 3" PORTABLE GRINDER

No. 24317 3" High Speed B	onded Grinding Wheel\$1.	.60
	Assembly, complete	
No. 31456 Clamp Nut		.75
No. 20285 Double End Wre	nch (⁹ /16" x ¹¹ /16")	.25
No. 24187 1/4" S. A. Chuck	with 1/8" Reducing Sleeve 4.	.50
No. 21955 1/8" Reducing Sle	eve only for No. 24187 Chuck 1	.00

HEAVY-DUTY PORTABLE GRINDERS

Complete line with most advanced features. Splined gear mountings, steel inserts for bearings, welded steel wheel guards; dust-sealed commutators and switches; ball-bearings set at spindle ends absorb side thrust; shaped grips and switch handles improve control. All grinders furnished with correct size grinding wheel.

4" PORTABLE GRINDER



5" PORTABLE GRINDER



6" PORTABLE GRINDER



Wheel Size, 6" x 1" x 5%"; No-load Speed, 3800 R.P.M. Net weight, 20 lbs.; overall length, 25"; shipping weight, 26 lbs. Price, complete, specify voltage—(Cat. No. 61).....

Standard Voltage-110 or 220. On special order 125 or 240 volts.

Standard Equipment—For 4", 5" and 6" Grinders—3-conductor cable and plug (3rd wire for grounding); dust-sealed plunger switch; grip end handle; adjustable steel wheel guard and one grinding wheel.

Standard Voltage-110 or 220. On special order 125 or 240 volts. Wheel Rotation-Counter-clockwise, facing wheel-end.

GLUE POTS



Especially designed for continuous use where maintenance of constant working temperature is important. Thermostatic control brings the temperature of the glue up to 150° Fahrenheit rapidly, and maintains it at that temperature without variation of more than 5°. Nichrome heating element hermetically sealed and protected against moisture and foreign substance. Ideal for use with book binderies, printing plants, furniture and cabinet factories, toy factories, piano factories, etc. Capacity of glue container—2 quarts.

\$100.00



WHIRLWIND WIRE WHEEL BRUSHES



WHIRLWIND wire wheel brushes give you more brush for your money. More wire per section—closely pack-ed—securely anchored —for long life on heavy duty work. More qual-ity—highest grades of wire—carefully selected and tested. More va-riety of sizes and types —one-, two- or three-sections—three wire sizes—six diameters— interchangeable arbor hole adaptors—fit any arbor or spindle. WHIRLWIND wire

.014" WIRE DIAMETER SIZE

BRUSH	No. of BRUS		Width	ARBOR	CATALOG	PRICE
DIAM.	SECTS.	Hub	Face	ADAPTOR*	NUMBER	EACH*
4″	$\begin{array}{c}1\\2\\3\end{array}$	11/16" 11/16" 1"	$\frac{5'8''}{7'8''}$ $1\frac{1}{8}''$	3/2"	23200 23201 21397	\$1.00 1.20 1.55
6″	$\begin{array}{c}1\\2\\3\end{array}$	7/6" 11/16 1"	34" 1" 138"	1/2 "	23202 23203 21401	$ \begin{array}{r} 1.20 \\ 1.65 \\ 2.20 \end{array} $
7″	.1 2 3	11/16" 11/16" 1"	3/4 " 1" 13/8"	5/8 ⁿ	23204 23205 21411	$1.65 \\ 2.30 \\ 3.10$
8″	$\begin{array}{c}1\\2\\3\end{array}$	11/16" 11/16" 1"	$\frac{\frac{7}{8}''}{\frac{11}{8}''}{\frac{11}{2}''}$	5⁄8 ″	23206 23207 21405	$1.70 \\ 2.65 \\ 3.55$
10"	4	15/16"	17/8"	3/4 "	21407	5.95
12″	4	13/8"	23/4 "	11/4 "	21409	7.30

.0118" WIRE DIAMETER SIZE

4″	$\begin{array}{c}1\\2\\3\end{array}$	11/16"	5/8" 7/8" 11/8"	1/2"	27000 27001 27002	$1.00 \\ 1.20 \\ 1.55$
6″	$\begin{array}{c}1\\2\\3\end{array}$	11/16" 11/16" 1"		1⁄2″	27003 27004 27005	$1.20 \\ 1.65 \\ 2.20$
8″	$\begin{array}{c}1\\2\\3\end{array}$	11/16" 11/16" 1"	$\begin{array}{r} 7'8''\\ 11'8''\\ 11'2'' \end{array}$	5/8″	27009 27010 27011	$1.70 \\ 2.65 \\ 3.55$
10"	4	15/16"	17/8"	3/4 "	27012	5.95
12″	4	13/8"	23/4 "	11/4 "	27013	7.30

.005" WIRE DIAMETER SIZE

4″	1 2 3	11/16" 11/16" 1"	5/8" 7/8" 11/8"	1⁄2″	23208 23209 23210	$1.45 \\ 1.95 \\ 2.70$
6″	$\begin{array}{c}1\\2\\3\end{array}$	11/16" 11/16" 1"	3/4" 1" 13/8"	<u>1⁄2″</u>	23211 23212 23213	2.10 3.50 5.15
8″	$\begin{array}{c}1\\2\\3\end{array}$	11/16" 11/16" 1"	$\frac{7'''}{11'''}$	₿⁄8″	23217 23218 23219	$2.65 \\ 4.30 \\ 6.10$

*Price includes one set of Arbor Hole Adaptors. The size Adaptor normally furnished is indicated above, but any other size from $\frac{3}{6}$ " to $1\frac{3}{4}$ " can be substituted, if specified in ordering.

GRINDING WHEELS

	6" Junior Bench Gr
	6" H.D. 1 (H, K an
and the second	6" Bench (Ball Bea
A REAL	7" Bench (Type B)
1 million	8" Bench (Type F
	10" Benc (Type B,
Anno -	Portable & Die Gr
2.0	4" Portal
1000	5" Portal
a	6" Portal
	7" Junior
-	7" Standa
	7" H.D. S

9"

UNIT	CAT. NO.	PRICE	GRADE
Junior, 6" Standard ench Grinder (A)	18124 18125	\$2.35 2.35	Fine 60K Med. 36G
[*] H.D. Bench Grinder I, K and L)	$ \begin{array}{r} 15315 \\ 15314 \end{array} $	$2.65 \\ 2.65$	Med. 36G Fine 60K
⁷ Bench Grinder Ball Bearing) (G)	13950 5183	$3.25 \\ 3.25$	Med. 36G Fine 60K
" Bench Grinder Type B)	14236 14235	4.00 4.00	Med. 36G Fine 60K
⁷ Bench Grinder Type F and G)	18061 18062	5.00 5.00	Med. 36K Fine 60M
)" Bench Grinder Type B, C and D)	10275 10274	7.75 7.75	Med. 40K Coarse 24H
ortable Grinders Die Grinders	20330 20329 24317	$1.25 \\ 1.35 \\ 1.60$	36-598E 36-598E 36-598E
" Portable Grinder	6772	1.65	Med. 36G
" Portable Grinder	3042	2.35	Med. 36G
" Portable Grinder	3148	3.10	Med. 36G
" Junior Sander	10663	2.10	Med. 36H
Standard Sander	24050	4.85	163-9-K4
H.D. Sander	23444	6.90	163-9-K4
H.D. Sander	18039	9.00	163-9-K4

VACKAR-Electric Vacuum Cleaner No. 95 VACKAR

A super-powered cleaner for both automotive and industrial use. With both inlet and outlet hose connections, it can be used as a vacuum cleaner or a blower. The No. 95 Vackar makes an ideal allpurpose cleaner for heavy-duty service in garages, super-service stations, and wash-racks.

Its dual service as cleaner and blower also adapts it to all types of industrial cleaning. It is self-contained, rolls easily over rough floors on ball-bearing swivel casters and its 15-foot flexible hose easily reaches out-of-the-way corners.



Dimensions: Height, 28"; Diameter of top, 1614"; Diameter of Base, 181/2". Sealed vacuum pull, 65"; Vacuum with 1" orifice, 18".

Net weight, 52 lbs.; Shipping weight, 67 lbs.

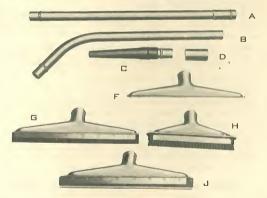
- Price, complete, specify voltage-(Cat. No. 95).....\$160.00
 - Available for 110 or 220 volts. On special order 125 or 240 volts. Universal Motor.

No. 95 VACKAR REPLACEMENT ATTACHMENTS

No.	33058	15-foot Flexible Hose, Extra Flexible	\$16.00
No.	23891	Wide Upholstery Nozzle	2.85
No.	23903	Flat Tube Nozzle	.50
No.	18186	6 ¹ / ₂ " Upholstery Brush	1.15
No.	23676	Set of 3 Ball-Bearing Casters	4.25

INDUSTRIAL ATTACHMENTS FOR VACKAR

To expand the use of the Vackar to industrial cleaning, a special group of attachments is listed below. The various nozzles fit the long rigid operator's handle, which is in two parts. This handle requires the Coupling Adaptor to fit the hose of the No. 95 Vackar. The Blower Tool also uses the Coupling Adaptor to fit the No. 95 Vackar hose.



No. 23902 15-foot Flexible Hose, Semi-Rigid	\$14.00
No. 24834 Operator's Handle-Straight Section* (A)	4.60
No. 24835 Operator's Handle-Curved Section (B)	4.60
No. 26081 Soft Rubber Blower Tool* (C)	2.10
No. 24836 Coupling Adaptor for No. 95 Vackar (D)	1.30
No. 24833 14" Floor Nozzle** (F)	9.50
No. 26084 14" Felt Floor Tool** (G)	14.50
No. 26086 Replacement Felt Strip for No. 26084 (Set of 2)	
No. 26083 10" Floor Brush Tool** (H)	
No. 26600 Replacement Nozzle for No. 26083	
No. 26518 Replacement Brush for No. 26083.	6.50
No. 26085 14" Squeegee Nozzle** (J)	15.25
No. 26087 Replacement Wide Rubber Strip for No. 26085 (Set of 2)†	1
No. 26088 Replacement Narrow Rubber Strip for No. 26085 (Set of 2)†	
No. 25913 Extension Coupling (Joins 2 Hose Sections)	
[†] Price includes Set of No. 26087 and Set of No. 26088.	
*Use with Adaptor No. 24836 for No. 95 Vackar.	

*Fit on end of Operator's Handle-Nos. 24834-24835.



ELECTRIC VALVE SHOP



A complete valve recon-ditioning "shop" on wheels. Smart display of precision equipment helps sell reconditioning jobs; sturdy metal cabinet carries all tools necessary for complete, accurate job right at the car. Roomy cabinet top holds Super-Service Refacer and Vibro-Centric Dressing Stand; large drawer has definite space for each item of Vibro-Centric equipment, including Pilots, Stones and Sleeves. plus carbon cleaning brushes, valve guide cleaners and room for other hand tools; lower storage section for Vibro-Centric Driver and other items such as gaskets, drills, etc.

Cabinet Dimensions: Height, 35"; width, 35"; depth, 20". Shipping weights: Valve Shop, 322 lbs.; Cabinet only, 130 lbs.

STANDARD ELECTRIC VALVE SHOP

1 Valve Shop Cabinet.

Super-Service Refacer (Wet-Grinding or Standard).

Leatherette Refacer Cover

- Standard Driving Unit (Straight or 55°).
- 3 Valve Guide Cleaners: 21441 (3/6"); 21445 (3/8"); 21449 (1/6"). 2 Carbon Cleaning Brushes: 21416 (Heavy Duty); 21417
- (Side Flare).
- Standard Stone Dressing Stand-No. 20153.
- 2 Standard Stone Sleeves-No. 22100.
- 5 Self-Centering Pilots
- 2 Hard Seat Stones
- As itemized in Standard Universal Vibro-Centric Kit.
- 6 Soft Seat Stones **Finishing Stones**

Standard Voltage-110 or 220. On special order 125 or 240 volts.

Price,	Standard	Valve	Shop,	complete,	specify	voltage
-with	No. 115 St	andard	Straight	Driver and		-
0 / 11 /						

% Standard Refacer—(Cat. No. 509)	\$426.00
¹¹ / ₁₆ " Standard Refacer—(Cat. No. 510)	436.00
%" Wet-Grinding Refacer-(Cat. No. 514)	. 441.00
11/16" Wet-Grinding Refacer—(Cat. No 515)	451.00
-with No. 440 Standard 55° Driver and-	
%6" Standard Refacer—(Cat. No. 465)	432.00
11/6" Standard Refacer—(Cat. No. 466)	442.00
%" Wet-Grinding Refacer—(Cat. No. 463)	. 447.00
11/6" Wet-Grinding Refacer—(Cat. No. 464)	

HEAVY-DUTY ELECTRIC VALVE SHOP

Valve Shop Cabinet. 1

1 Super-Service Refacer (Wet-Grinding or Standard). 3 Valve Guide Cleaners: 21441 ($\frac{3}{16}$ ";) 21445 ($\frac{3}{8}$ "); 21449 $(7_{16}'')$. 2 Carbon Cleaning Brushes: 21416 (Heavy-Duty); 21417

(Side Flare)

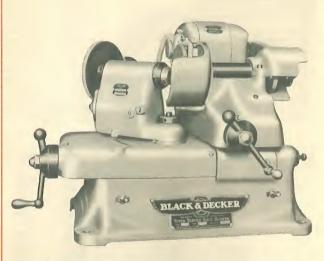
Contents of Heavy-Duty Universal Vibro-Centric Kit; includ-ing Heavy-Duty Driving Unit, Standard Dressing Stand, 2 Standard Stone Sleeves, 5 Self-Centering Pilots; 8 Hard Seat Stones, 7 Soft Seat Stones, Pilot Turning Wrench.

Standard Voltage-110 or 220. On special order 125 or 240 volts.

Prices, Heavy-Duty Electric Valve Shop, complete, specify voltage-with-

%6" Standard Refacer—(Cat. No. 341)	\$456.00
11/16" Standard Refacer—(Cat. No. 342)	466.00
% ["] / ₁₆ " Wet-Grinding Refacer—(Cat. No. 339)	471.00
11/16" Wet-Grinding Refacer—(Cat. No. 340)	481.00
Price, Valve Shop Cabinet only-(Cat. No. 31363)	85.00

SUPER SERVICE VALVE REFACERS



Dry Refacer Weight: Net, 143 lbs.; shipping, 163 lbs.

Wet Refacer Weight: Net, 146 lbs.; shipping, 174 lbs.

Precision Valve Grinders combining speed of operation, smooth finish and absolute accuracy in the reconditioned valve face. Two independent universal motors give abundant power and in addition-a third independent motor for driving pump on Wet-Grinding Refacer only; feed screws give lever-feed speed with screw-feed accuracy; 3-point bearing on feed tables gives smooth action; "twin-grip" collet insures accurate alignment of valve face and stem; ball bearing wheel spindle, doubleended to provide for valve stem and rocker arm grinding; universal work head, adaptable to all popular valve angles and stem sizes.

The Super-Service Valve Refacer can be bought in any of four combinations—in either $\frac{9}{16}$ " ($\frac{9}{32}$ "- $\frac{9}{16}$ " stem sizes) or $\frac{11}{16}$ " ($\frac{9}{32}$ "- $\frac{11}{16}$ " stem sizes) and as a Wet-Grinding or Dry-Grinding Refacer. In all models the collet head is adjustable to grind angles from 30° to 90° , and the unit is completely equipped with Universal motors, a 4" grinding wheel and wheel dresser, 3-wire cable and plug; and valve stem collet.

Cat.	106-9/16" Dry-Grinding Super-Service Refacer. \$235.00
Cat.	107-11/16" Dry-Grinding Super-Service Refacer. 245 00
Cat.	281-9/16" Wet-Grinding Super-Service Refacer. 250.00
Cat.	282-11/16" Wet-Grinding Super-Service Refacer., 260.00

Standard Voltage-110 or 220. On special order 125 or 240 volts.

MICROMETER VALVE STEM GRINDING ATTACHMENT



A new "universal" stem grinding attachment for obtaining exact tappet clearance on all Ford valves and other valves not having tappet adjustments. The same attachment will also grind and true Ford and other tappets. The accuracy and simplicity of this attachment will save many hours of guesswork. Fits all Super-Service (Standard or Wet Grinding) Refacer and operates on the outer end of the wheel spindle; does not interfere with the refacing set-up.

No. 18252 Complete Micrometer Valve Stem Grinding Attachment, as detailed above \$24.00



NO. 6 UNIVERSAL VALVE & TOOL GRINDER

An unequalled combination of engineering and operating features makes this new Heavy-Duty Production Grinder the outstanding leader in valve reconditioning performance. A wide variety of valve sizes can be refaced on a highspeed production basis and also the flexibility of the machine permits many tool grinding operations such as the sharpening of cutters and reamers. Attachments for grinding Valve Stems, Tappets and Rocker Arms are standard equipment. All controls and adjustments are designed for foolproof, rapid operation and performance in general is unexcelled in today's markets.

Standard Voltage:

110V.1	Ph.,	50-60	cycle,	Catalog	No.	522	\$950.00
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Available on Special Order:

125V, 1 Ph., 50-60 cycle, Catalog No. 522	.\$950.00
220V, 1 Ph., 50-60 cycle, Catalog No. 522	950.00
250V, 1 Ph., 50-60 cycle, Catalog No. 522	
110V, 1 Ph., 25 cycle, Catalog No. 523	950.00
115V, D.C., Catalog No. 527	

Give complete characteristics of your current when ordering.

OUTSTANDING FEATURES:-

Range:-Reface valves of any angle 1. Range:---Relace valves of the stems from from 0° to 90° with valve stems from 1/4" to 11/4" in diameter. Head diameters up to 51/4" are easily handled.

Traverse grind any angle valve from 2. Traverse grind any angle of the second se type valves.

Air Chuck grips or releases valve stem 3. instantly-alignment is assured with twin grip collets. Regulated valve reduces air pressure of supply line to the 80 to 90 lbs. required by air chuck.

A separate universal motor drives the 4. workhead. Motor speed is quickly adjustable to accommodate large and small sized valve heads.

Hypoid gearing drives the workhead 5. spindle for the smoothest grinding finish.

Work table is mounted on slide bear-6. ings of simple, clean design. After long service an adjustment for wear can be made without any disassembling of the parts.

7. For abundant power the grinding wheels are driven by a separate 3/4 horsepower constant-speed motor.

Closed-type, grease-sealed ball bear-8. Closed-type, grease-sealed ball bear-ings, pre-loaded, with automatic take-up for wear are at each end of the wheel spindle. Assembly is rigidly mounted in a removable "quill" clamped in the wheel saddle.

9. Automatic work-head motor switch. Turns "on" and "off" as work table moves valve toward and away from wheel. Work table travel is limited by an adjustable stop which prevents grinding the valve stem.

10. A drawer-tank of 2 gallon capacity permits large volume wet grinding. A series of baffle plates "settle" grinding sediment. Fluid nozzles have flow control valves and ball-socket joints.

Standard equipment includes attach-11. ments for grinding Valve Stems, Tappets and Rocker Arms.

12. Tool Grinding: The flexibility and adjustments possible on this machine suit it for many production jobs and machine shop tool grinding operations.

GENERAL SPECIFICATIONS

Overall Height-50" Overall Width—50" Cabinet—291⁄4" x 24" x 16" Grinder Net Wt.—290 lbs.

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Cabinet Net Wt.-160 lbs. Total Ship. Wt.-500 lbs. Valve Stem Cap.-14" to 114 Valve Head Cap.-Up to 51/4"

REPLACEMENT EQUIPMENT AND EXTRA GRINDING WHEELS

No.	31729	V-Belt DC and 60 cycle wheel motor	.75
No.	32588	V-Belt 25 cycle wheel motor	1.15
No.	32860	1/4" to 1/16" Collet for short valve stems	8.00
No.	18325	9/2" to 9/16" Collet	8.00
No.	15200	1/2" to 11/16" Collet	10.00
No.	31513	9/6" to 7/8" Collet	12.00
No.	31514	7/8" to 11/4" Collet	12.00
No.	32944	6" x 3/4" x 2"-60N Recessed Grinding	
		Wheel (Standard Equipment)	3.25
No.	31429	6" x 3/4" x 2"-46N Recessed Grinding	
		Wheel	3.25
No.	32822	6" x 34" x 2"-80N Recessed Grinding	
		Wheel.	4.50
No.	20939	4" Recessed Grinding Wheel for Valve Stems	9.40
		and Rocker Arms (Standard Equipment)	2.40

ACCESSORIES & REPLACEMENTS FOR SUPER-SERVICE VALVE REFACERS

No. 20949	Wet Grinding Attachment, complete \$ Can be used with Micrometer Valve Stem Grinding Attachment or Rocker Arm Grinding Attachment on Wet Grinding Super-Service Refacers only. Rocker Arm Grinding Attachment Operates on outer end of Super-Service Refacer Wheel Spindle. Consists of a Micrometer Feed mounted on a machine bar. A bracket holds the diamond point for dressing the 4" recessed wheel. An adjustable arm is pivoted and slotted to permit the grinding of various sized Rocker Arms. A double cone clamp holds the Rocker Arm and is adjustable for various sized bores. A Grinding Wheel is not included with the attachment. Use No. 20939 4" recessed Grinding Wheel.	15.00	 No. 31471 Standard 4* Wheel for hard valves	2.40 3.00 8.00 10.00 2.25 3.50 3.75 .65 .65 .35
No. 19898	15° and 90° Dressing Attachment Includes No. 19897 special Grinding Wheel for 15° and 90° valves.	10.50	No. 22946 Pint Container Grinding Wheel Coolant No. 22947 Quart Container Grinding Wheel Coolant No. 22173 Adjustable Lamp, complete with Socket, Switch, etc	.60 .95 6.50
No. 19897	Special Wheel only for 15° and 90° valves	3.00	No. 32121 Leatherette Refacer Cover	3.50



To assure you prompt, efficient service on Black & Decker Products, we operate 28 Factory Service Branches at strategic points throughout the United States and Canada. These Service Branches are manned by Factory-trained personnel and equipped with genuine Black & Decker service and replacement parts. When you need "factory service," you will find a Black & Decker Factory Service Branch within 24 hours of you, ready to serve you as expertly, as reasonably and as promptly as at Towson.

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